Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

CONDITIONAL MAJOR (FINAL) PERMIT NO. F-06-035
HYDRO ALUMINUM NORTH AMERICA, INC.
HENDERSON, KY.
MARCH 12, 2007
REVIEWED BY: MIN WANG

SOURCE I.D. #:	021-101-00130
SOURCE A.I. #:	1817
ACTIVITY #:	APE20050002

SOURCE DESCRIPTION:

Hydro Aluminum North America, Inc., located in Henderson, Kentucky, is classified as a Secondary Aluminum Production facility. Hydro Aluminum is a remelt plant, where aluminum scrap is recycled into primary aluminum extrusion billets. Purchased scrap is received at the plant and is remelted and processed in natural gas-fired melting, holding, and homogenizing furnaces. The resulting billet products, through alloying and tempering, are designed for specific customer applications.

Hydro Aluminum's Henderson plant is currently operating under Conditional Major Permit No. F-00-013. Hydro Aluminum's application for renewal of the operating permit was received on April 6, 2005. The renewal application was deemed complete on June 5, 2005 (60 days after receipt of application). Applications were previously submitted for the implementation of minor revisions, one on March 8, 2002 and the second on February 24, 2004. The revisions requested in all applications have been incorporated into the permit.

Hydro Aluminum is classified as an area source for HAPs (dioxins/furans) pursuant to 40 CFR 63, Subpart RRR, and as such was formerly required to submit a Title V application by the date of December 9, 2005. On December 19, 2005, EPA promulgated a final rule exempting certain area source categories from the Title V application submittal requirement; one such category is Secondary Aluminum Production. 70 FR 75320 (12/19/2005) states:

Section 63.1500 is amended by revising paragraph (e) to read as follows: If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

Thus Hydro Aluminum remains an area source as classified under 40 CFR 63, Subpart RRR as well as a Conditional Major source under 401 KAR 52:030, and is not subject to the Title V application submittal requirements.

The facility has requested that all hourly production and emission limits be removed and that the facility be limited only on an annual basis. A source-wide limit of 90 tons per year will be placed on particulate, CO, and VOC emissions, 9 tons per year any individual HAP, and 22.5 tons per year

combined HAP have been applied to replace individual emission point limits. The exception is specific to the Group 1 furnace (Reverberatory Melting Furnace), the applicable limit is 0.00021 grains of D/F TEQ/ton of charge or feed (per 40 CFR 63.1505(i)(3)). Hydro Aluminum has requested an increase in Dross handling and disposal to 6,000 tons per year. Calculations employing these limits demonstrate that the facility will remain under the major source thresholds. Additional annual limits on aluminum production (130,000 tons per year) and natural gas usage (1035.7 million cubic feet per year) have been proposed by Hydro Aluminum. The facility will also voluntarily agree to charge no greater than 30% painted scrap.

In the current permit there exists an emission point identified as Emission Point #12. This unit did not correspond to the units listed under the **Group Requirements: Group A** emission point descriptions. The facility has associated the Briquette Press with EP #12. Calculations provide by the plant indicate that EP #12 Briquette Press is an insignificant activity and has been included in **Section C** of the permit.

Three additional insignificant activities were added to Section C – Insignificant Activities based upon information provided by Hydro Aluminum: (1) the addition of a 2,000 gallon fixed roof distillate storage tank (EP #14), (2) the addition of gasoline storage tank (EP #15), and (3) the inclusion of the Plant Roadways and Vehicular Traffic.

PUBLIC AND U.S. EPA REVIEW:
On January 13, 2007, the public notice on availability of the draft permit and supporting material for comments by persons affected by the plant was published in *Henderson Gleaner* in Henderson, Kentucky. The public comment period expired 30 days from the date of publication.

No comments received
No comments were received during this period. The permit is now being issued final.

COMMENTS:

This source is subject to:

1. Regulation 401 KAR 59:010, *New process operations*.
2. Regulation 401 KAR 63:010, *Fugitive emissions*.
3. Regulation 401 KAR 63:002 Section 3(1)(eee), incorporating by reference 40 CFR 63 Subpart RRR, *National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production.*

Applicable requirements specific to individual emission units are listed as follows:

EP 01 (01) Aluminum Reverberatory Melting Furnace:

a. The following specific requirement is applicable to dioxin/furan emissions from Group 1 Furnaces in the secondary aluminum process: Dioxin/furan (D/F) emissions shall not exceed 0.00021 grains of D/F TEQ/ton of charge or feed. Compliance shall be demonstrated by performing calculations and emission testing at least once per permit term as specified in the permit. Pursuant to Subpart RRR, Hydro Aluminum has submitted an Operation, Maintenance, and Monitoring Plan (OM&M Plan), therefore the facility shall follow the specific monitoring procedures required to limit

dioxin/furan emissions.

b. Hydro Aluminum has self-imposed a 130,000 ton per 12-month rolling total aluminum scrap charging rate limit, of which the painted scrap content shall not exceed 30%. This limit is imposed to preclude major source classification, Title V permit requirements, and major source requirements in 40 CFR 63, Subpart RRR.

EP 05 (06) Dross Handling:

a. The annual process rate of aluminum dross from each emission point shall not exceed a total of 6,000 tons per 12-month rolling total.

EP 06 (--) Raw Material Handling and Charging:

a. The annual aluminum scrap handling and charging rate shall not exceed 130,000 tons per 12-month rolling total. This limit is imposed to preclude major source classification, Title V permit requirements, and major source requirements in 40 CFR 63, Subpart RRR.

b. Reasonable precaution shall be taken to prevent particulate fugitive dust from becoming airborne.

EP 08 (--) Degassing Filter Station:

a. Hydro Aluminum shall flux with only non-reactive flux. This operating limit is self-imposed to preclude the applicability of 40 CFR 63.1505(j)(1) - (2). Compliance shall be demonstrated by submitting certification of compliance with the operation standard for no reactive flux materials as specified in §63.1506(l) for each 6-month reporting period.

Applicable group requirements are listed as follows:

The following emission points releasing to the atmosphere through a stack or control device are subject to the process weight PM and opacity limits per 401 KAR 59:010:

EP 01 (01) Aluminum Reverberatory Melting Furnace:
EP 02 (02) Aluminum Holding Furnace:
EP 03 (03,04,05) Three Homogenizing Furnaces:
EP 04 (06) Melting and Holding Furnace Doors:
EP 05 (06) Dross Handling:

Currently, Hydro Aluminum is required to demonstrate compliance with opacity limits by performing daily visible observations and perform Method 9 Testing when visible emissions are seen.

The following emission points are fugitive emission sources subject to 401 KAR 63:010 Fugitive emissions and are expected to provide reasonable precaution to prevent fugitive emissions from becoming airborne:

EP 06 (--) Raw Material Handling and Charging:
EP 08 (--) Degassing Filter Station:

Type of control and efficiency:

Particulate emissions from the melting and holding furnace doors and Dross handling are controlled by a baghouse system with an efficiency of 94%.

NOx emissions from the melting furnace are controlled by low NOx regenerative burners; NOx emissions from the holding furnace are controlled by low NOx cold air burners.

Emission factors and their source:

Emission factors associated with natural gas combustion were taken from AP-42 Chapter 1.4.

Factors associated with the plant roadways were taken from AP-42 Chapter 13.2.1.

Factors associated with all pollutants from the melting and holding furnaces were derived from stack tests performed during April, 2003. The only exception is the dioxin/furan emission factor specific to the melting furnace (0.00021 grains/ton charge or feed), which is equivalent to the applicable limit under 40 CFR 63 Subpart RRR. The D/F emission factor was converted to lb/ton by using the conversion 7000 grains per pound so that the correct emission rate could be calculated by the KY EIS.

Fugitive emissions from the furnace doors are released while charging occurs. The fugitives are collected and controlled by baghouse. Factors associated with fugative PM, PM_{10}, HCl, and dioxin/furan from the melting and holding furnace doors were derived from stack tests performed on the associated baghouse during April, 2003. The D/F emission factor from the test results was in grains/ton charge, therefore it was converted to lb/ton charge by using the conversion factor of 7000 grains per pound so that the correct emission rate could be calculated by the KY EIS. All other emission factors were taken from the 2005 KY EIS. The 2005 KY EIS divided the EP004 into two units; (1) clean charge and (2) painted charge. Factors associated with pollutants other than PM, PM_{10}, HCl, and dioxin/furan are from the processing of the painted scrap portion of the charge material. Since factors from testing with 30 % scrap are used, there is no longer a need for distinction between clean charge and scrap in the EIS; accordingly, EP004 has been combined for the purpose of using one process rate, 130,000 tons per year. Therefore, the emission factors taken from the 2005 KY EIS were multiplied by 30% to calculate the emission rate corresponding to the 130,000 ton per year at 30% painted charge operating limits.

Factors associated with PM and PM_{10} from the Dross handling was derived from engineering estimates. The lead emission factor was taken from the 2005 KY EIS.

Factors associated with the raw material handling, degassing filter station, billet coolers, billet saw, and vertical direct chill caster were taken from the 2005 KY EIS except for VOC, NOx, and SO2 factors from the vertical direct chill caster were taken from EPA FIRE 6.23.

Emission factors for the gasoline and diesel storage tanks were obtained from EPA FIRE 6.13 for petroleum vessels of various sizes.

EMISSION AND OPERATING CAPS DESCRIPTION:

Hydro Aluminum has requested that a flexible permit be issued without hourly operating or emission limitations. The melting and holding furnaces have the capacity to process approximately 50 tons per hour each. Hydro Aluminum has opted to take a self-imposed limit 130,000 tons per 12-month rolling total on production while processing only 30% painted scrap. Hydro Aluminum also requested an increase in Dross handling and disposal to 6,000 tons per year. The facility has requested that all hourly production and emission limits be removed and that the facility be limited only on an annual basis. Source-wide limits of 90 tons per year for emissions of any single criteria pollutant, 9 tons per year any individual HAP, and 22.5 tons per year combined HAP have been applied to replace individual emission point limits. These conditions are set forth to preclude applicability of Title V permitting requirements and major source requirements in 40 CFR 63 Subpart RRR.

Hydro Aluminum is an area source of HAP (dioxin/furan) emissions and as such the Group 1 furnace (Reverberatory Melting Furnace) is subject to the applicable limit of 0.00021 grains of D/F TEQ/ton of charge or feed (per 40 CFR 63.1505(i)(3)).

The facility has also taken a facility wide cap on natural gas usage of 1035.7 million cubic feet annually.

PERIODIC MONITORING:

The facility shall provide reasonable assurance that the PM, HAP, and dioxin/furan emission limitations are met by monitoring daily amounts and types of process materials used and daily hours of operation.

To provide reasonable assurance that the visible emission limitations are being met, the permittee shall perform a qualitative Method 22 visual observation of emissions from the affected stacks on a daily basis, maintain a log of the observations, and determine the opacity of emissions by Reference Method 9 if visible emissions are observed.

Additional monitoring procedures are specified in 40 CFR 63.1510 of Subpart RRR that apply to dioxin/furan emissions from the melting furnace; these include the implementation of the OM&M Plan.

OPERATIONAL FLEXIBILITY:

Hydro Aluminum is limited by annual facility-wide operating caps on throughput levels, emissions, and work practices. Hourly throughput limitations have been removed from the permit, although the facility will be required to maintain records of daily clean charge, alloying material, and compliance with the 30% painted scrap rate.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.